FASTalk Analysis

Sample Characteristics

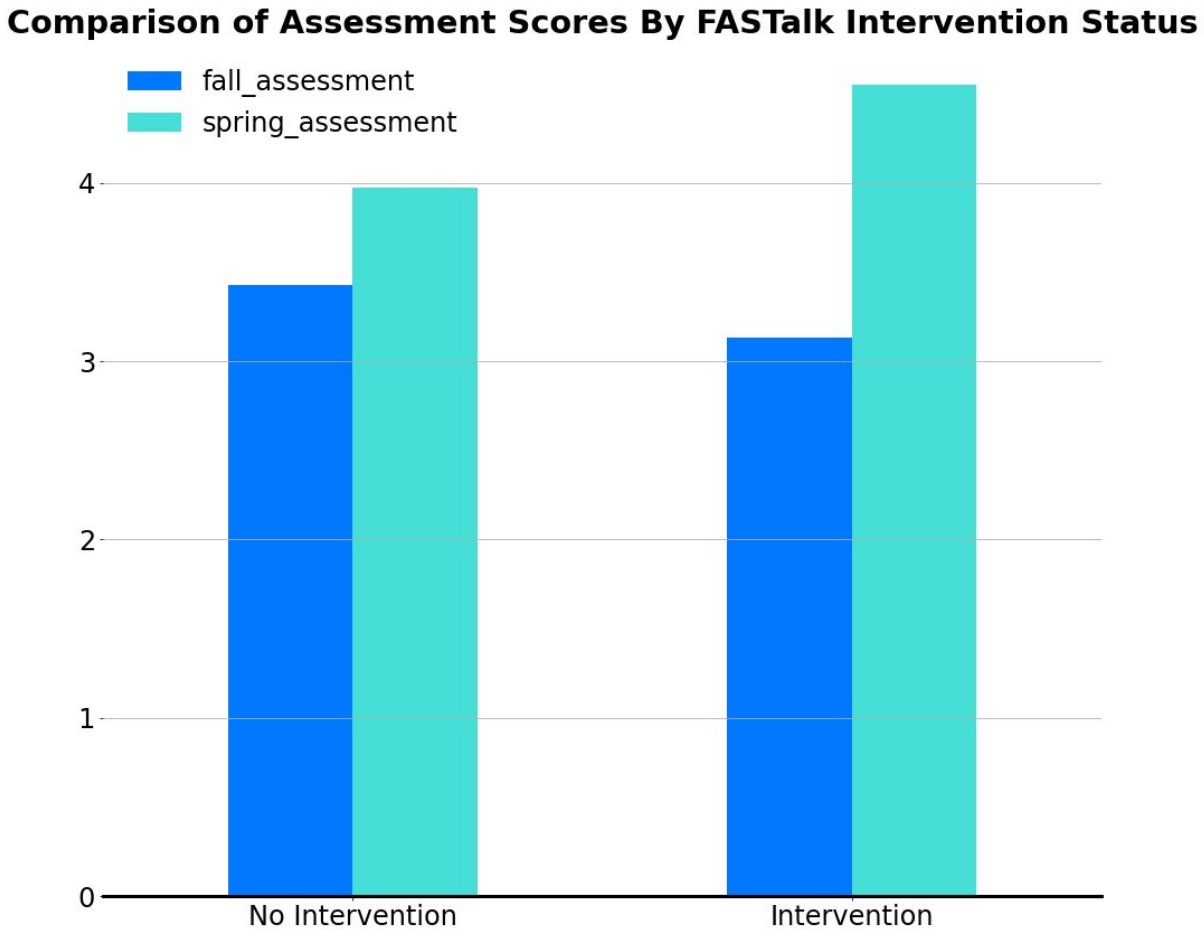
Of the original dataset of 301 students, 214 were selected. The 87 that were excluded were those in which there were incomplete observations (missing spring or fall assessment data etc).

Table 1: Characteristics of Study Sample

	Mean or Relative Frequency
Dependent variables:	
Spring Assessment Score	4.16
Fall Assessment Score	3.33
Independent variable:	
FASTalk Intervention	
% Receiving Intervention	32.24
% Not Receiving Intervention	67.76
Potential Control Variables:	
% Eligible for free/cheaper school meals	92.06
% Ethnicity	
% Black American	98.13
% Hispanic	1.87
Special Educational Needs	
% Yes	10.28
% No	89.72
English Proficiency	
% Proficient in English	98.13
% English learner	1,87

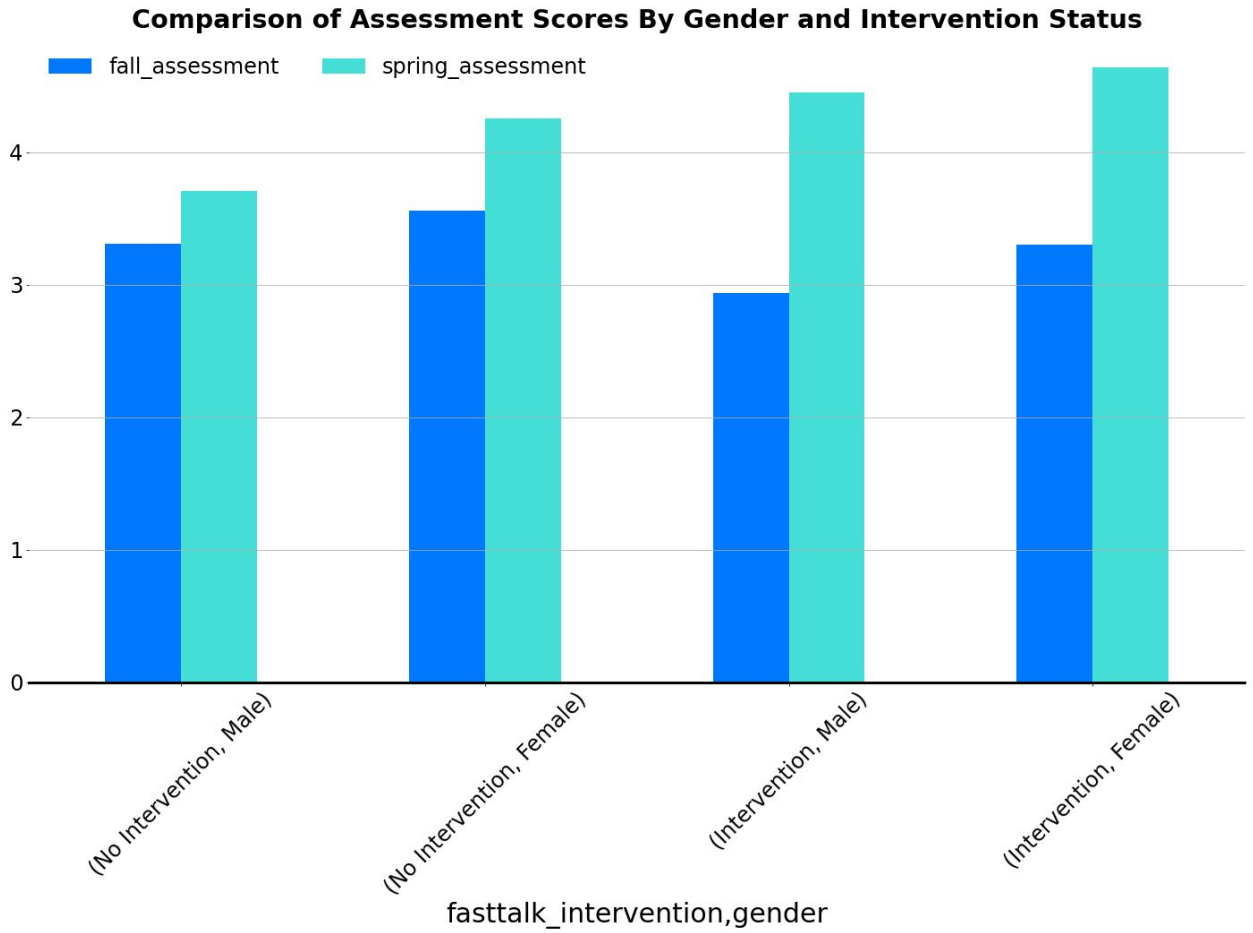
(N=214)

FASTalk Intervention Descriptive Statistics

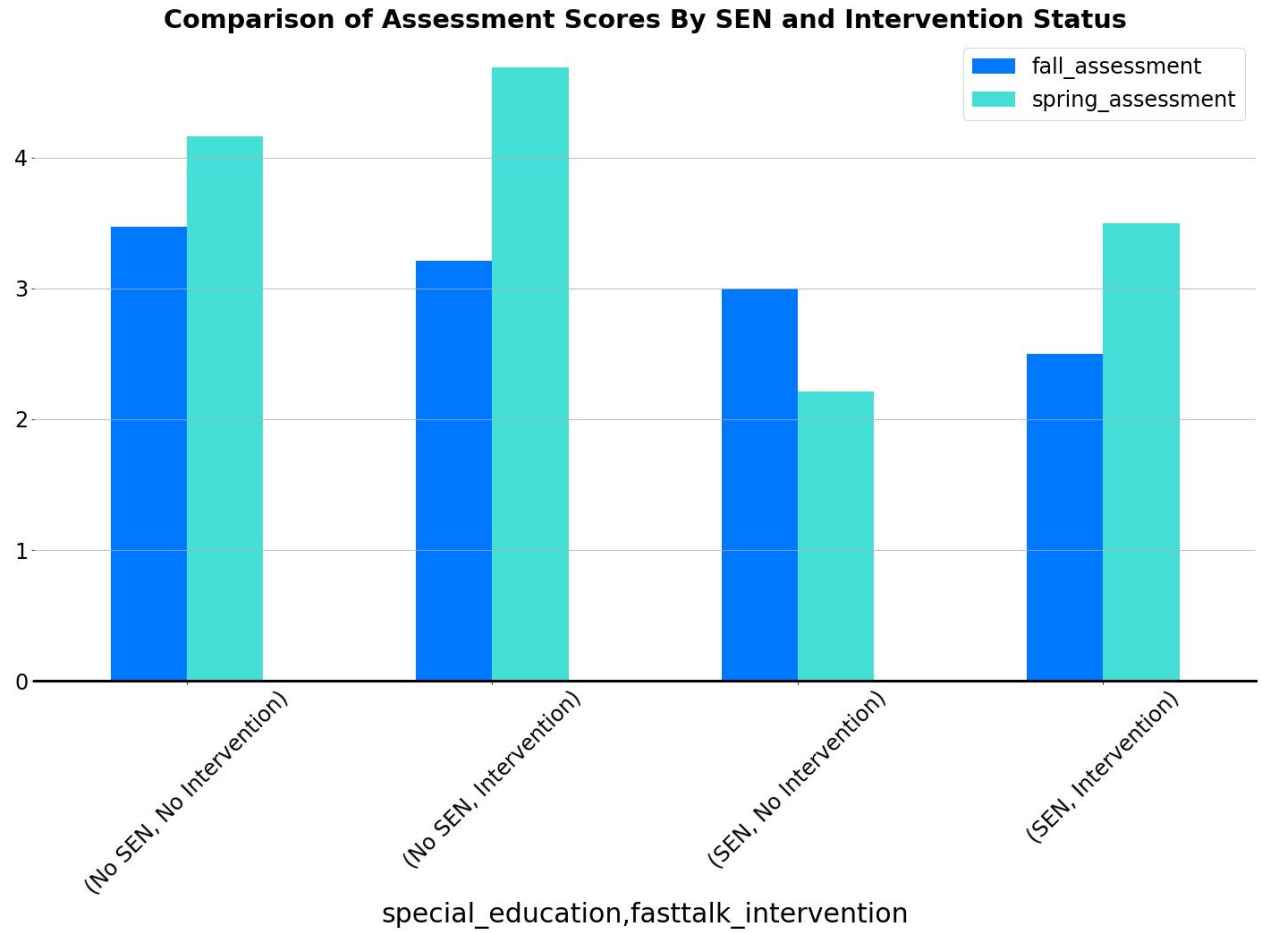


	Fall Assessment Score	Spring Assessment Score	Difference (Spring- Autumn)
Received Intervention	3.13	4.55	1.42
No Intervention	3.43	3.97	0.54

Despite starting the year with lower assessment scores, the students who received the FASTalk intervention ended up outperforming those who did not receive it.



		Fall Assessment Score	Spring Assessment Score
Received Intervention	Male	2.94	4.45
	Female	3.31	4.64
No Intervention	Male	3.31	3.71
	Female	3.56	4.26



		Fall Assessment Score	Spring Assessment Score
No Intervention	No SEN	3.47	4.16
	SEN	3.00	2.21
Intervention	No SEN	3.21	4.69
	SEN	2.50	3.50

*** Interesting to note that the SEN students who didn't receive the FASTalk intervention actually got worse over the year. The SEN students who did receive one had higher spring assessment scores than fall ones. Inferential analysis on how the intervention affected SEN vs non-SEN students wasn't possible due to extremely small sample size . ***

FASTalk Intervention Inferential Statistics

Simple Regression

```
                            OLS Regression Results
==============================================================================
Dep. Variable:      spring_assessment   R-squared:                       0.017
Model:                            OLS   Adj. R-squared:                  0.013
Method:                 Least Squares   F-statistic:                     3.737
Date:                Thu, 28 May 2020   Prob (F-statistic):             0.0545
Time:                        21:25:09   Log-Likelihood:                -455.79
No. Observations:                 214   AIC:                             915.6
Df Residuals:                     212   BIC:                             922.3
Df Model:                           1
Covariance Type:            nonrobust
============================================================================================
                               coef    std err          t      P>|t|      [0.025      0.975]
--------------------------------------------------------------------------------------------
const                        3.9724      0.170     23.386      0.000       3.638       4.307
fasttalk_intervention        0.5783      0.299      1.933      0.055      -0.011       1.168
==============================================================================
Omnibus:                        6.709   Durbin-Watson:                   1.696
Prob(Omnibus):                  0.035   Jarque-Bera (JB):                4.701
Skew:                           0.226   Prob(JB):                       0.0953
Kurtosis:                       2.431   Cond. No.                         2.42
==============================================================================

Warnings:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
```

Multivariate Regression

```
                            OLS Regression Results
==============================================================================
Dep. Variable:      spring_assessment   R-squared:                       0.092
Model:                            OLS   Adj. R-squared:                  0.070
Method:                 Least Squares   F-statistic:                     4.194
Date:                Thu, 28 May 2020   Prob (F-statistic):            0.00119
Time:                        21:31:23   Log-Likelihood:                -447.38
No. Observations:                 214   AIC:                             906.8
Df Residuals:                     208   BIC:                             927.0
Df Model:                           5
Covariance Type:            nonrobust
============================================================================================
                               coef    std err          t      P>|t|      [0.025      0.975]
--------------------------------------------------------------------------------------------
const                        2.6224      1.053      2.491      0.014       0.547       4.698
gender                       0.3091      0.275      1.122      0.263      -0.234       0.852
lunch_status                -0.0030      0.524     -0.006      0.995      -1.036       1.030
english_proficiency          1.3893      1.032      1.346      0.180      -0.645       3.424
special_education           -1.6259      0.457     -3.556      0.000      -2.527      -0.725
fasttalk_intervention        0.5890      0.293      2.007      0.046       0.010       1.168
==============================================================================
Omnibus:                        6.047   Durbin-Watson:                   1.618
Prob(Omnibus):                  0.049   Jarque-Bera (JB):                4.922
Skew:                           0.274   Prob(JB):                       0.0854
Kurtosis:                       2.499   Cond. No.                         18.8
==============================================================================

Warnings:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
```

Table 3: A Bivariate and Multivariate Regression Table of the Relationship Between FASTalk Intervention and Spring Assessment Scores

	Model 1 No Controls	Model 2 All Relevant Controls
FASTalk Intervention		
Received Intervention	0.578	0.589**
	(0.299)	(0.293)
Gender		
Female		0.309
		(0.275)
Lunch Status		
Receiving Free Meals		-0.003
		(0.524)
English Proficiency		
Proficient		1.389
		(1.032)
Special Education		
Yes		-1.626***
		(0.457)
Constant	3.972***	2.622**
	(0.170)	(1.053)
R^2	0.017	0.092

Note: Standard errors in parentheses. ***p<0.01, **p<0.05. Source: FASTalk Charity Data **(N=214)**. Values rounded to three decimal places as appropriate.

Methodology: Ordinary-least squares regressions were used for the analysis of this dataset. The first model is a simple bivariate regression, considering only the effect of FASTalk Intervention on Spring Assessment Scores. The second model adds in control variables- lunch status, english proficiency and special education status. Ethnicity was excluded as the sample was almost entirely Black American.

Results:

- Model 1: FASTalk Intervention wasn't significant to spring assessment scores.

- Model 2: FASTalk Intervention was significant at the p<0.05 level. The model predicts that, after controlling for SEN, lunch status, gender and english proficiency, students who received the intervention would score 0.589 points higher in their spring assessment.
  The only other variable that was statistically significant was Special Education, which was predicted to reduce spring assessment scores by 1.626 points.
  It's likely that with a larger, more representative sample the other controls would have achieved significance.